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FOREST SERVICE,

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SUGGESTIONS FOR THE COLLECTION OF RANGE PLANT SPECIMENS ON NATIONAL FORESTS.

During past seasons small herbaria, composed for the most part of range and forage plant species, have been started on some of the National Forests. These collections, supplemented by observations on plant development and life history, will be of great value to Forest officers, to the users of range, and to those who are making special studies of range revegetation.

The usefulness of these collections depends largely upon the choice of specimens and their treatment during the drying period. In order that the plants may have the necessary characters for identification a brief discussion on collecting and subsequent handling is here given.

SELECTION OF SPECIMENS.

The plants should be collected during their flowering or fruiting stage, and should include not merely the portion above ground, but enough of the underground parts to indicate clearly the character of the root system. It is often impossible to secure all these portions of the plant in a single specimen, so two or more should be collected when necessary. The sheets for mounting the specimens are $11\frac{1}{2}$ by $16\frac{1}{2}$ inches, and all specimens should come within these limits. If the plant is too large to be preserved in its normal position, it may be bent into any convenient form to bring it within the proper dimensions. In collecting specimens of trees and shrubs that are browsed, each species should be represented by two or three sprays or parts of branches when only one tree is found, or by one or two sprays from each when several trees are at hand. The sprays should be collected so that they represent the common leaf and fruit forms. Sprays should be taken from the lower, middle, and upper crown branches of the tree, and should be labeled as to relative position on the tree and as having come from one tree. With tree specimens, small squares of the bark should always be obtained; 2 to 4 inches square is sufficiently large.

METHOD OF DRYING.

The specimen should be placed between folded sheets of an absorptive paper, such as ordinary newspaper. These sheets containing the plants should then be piled alternately with two or three sheets of

blotting paper, and placed between boards or a wicker press and subjected to a pressure of from 45 to 65 pounds; this can be applied by tightly drawn straps or by a weight, not heavy enough to crush the tender parts of the green specimens, yet not so light as to allow the leaves to wrinkle in drying. Stems, roots, and other parts more than a quarter of an inch in thickness should be thinned on the back with a knife before pressing. The specimens in their containing sheets should be removed from the pile of moist blotters each day to a similar pile of well-dried ones; in most cases the specimens will be thoroughly pressed and dried in about a week. With tree specimens, however, especially conifers, the drying period is considerably longer.

MOUNTING FOR THE HERBARIUM.

When dry the specimens are ready to be mounted, by pasting them securely to white cardboard sheets with narrow strips of surgeon's plaster. Two or three sets should be collected at different times during the season, and two sheets filled each time. Only the specimens which are to be filed in the office should be mounted; duplicate specimens to be sent to the Washington office for identification, when ready for shipment, should be packed between two sheets of stiff pasteboard, securely wrapped and tied.

LABELING.

In collecting in the field, each specimen should be numbered on the outside of the lower left-hand corner of the containing sheet, in the order of collection. These numbers should be entered in a notebook labeled "Plant Catalogue," which should contain full notes on each specimen. A copy of these notes should accompany the specimens to their place of identification, and the original retained at the Forest office for reference. The plant catalogue should contain the following:

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|----------------------------------|-------------------------|
| 1. Catalogue number. | 4. Locality. |
| 2. Technical or scientific name. | 5. Altitude. |
| 3. Common or local name. | 6. Date when collected. |

SPECIAL NOTES ON RANGE PLANTS.

In the case of valuable grazing plants, the following points should be observed during the season and recorded in a separate notebook:

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| 1. Character of locality where collected: | 5. Dates when seeds germinate. |
| <i>a.</i> Altitude. | 6. Seed habits; prolific or weak. |
| <i>b.</i> Kind of soil. | 7. Abundance and distribution of plant. |
| <i>c.</i> Moisture conditions. | 8. Palatability to cattle or sheep. |
| <i>d.</i> Slope and exposure. | 9. General forage value. |
| <i>e.</i> Associated species. | 10. Kind of stock which grazes it. |
| 2. Dates when flower stalks are sent up. | 11. Date when stock is turned upon the range. |
| 3. Dates when seeds are matured. | 12. Remarks. |
| 4. Dates when seeds are disseminated. | |

IDENTIFICATION OF THE SPECIMENS.

Plants to be identified are to be collected in triplicate, one set to be retained by the supervisor and the other two to be forwarded to the District office.

The District office will retain one set for its own herbarium and forward the other to the Forester. This collection will be retained in the Washington herbarium unless its return is requested.

Arrangements will be made in each district herbarium for the necessary space for forage specimens, and the Grazing office will see that the files are properly kept. The designation "G, District, Forage Plant Identification," and "G, Wallowa, Forage Plant Identification," will be used in the correspondence pertaining to this herbarium work.

The identification of the plants is often difficult, and the specimens must be turned over to authorities who have special knowledge of certain plant groups. For this reason collectors will be provided with a special card to go with each specimen, covering the essential points of information, as follows:

Form 767.

HERBARIUM OF THE FOREST SERVICE.

U. S. DEPARTMENT OF AGRICULTURE.

Catalogue No.

Date of collection.....

Scientific name.....

Common name.....

State.....

Name of forest.....

Altitude.....

Soil character.....

Forage value.....

Name of collector.....

Letter of transmittal

(Date.)

(Case heading.)

This card will be securely pasted on the outer lower left-hand corner of each retaining sheet or attached to the specimen, and may or may not be included on the permanent mount. The "case heading of letter of transmittal" will be filled in in the District office, so that if special information is desired it may be referred to at any time. In case the plants are subsequently mounted, the mounting sheet will contain general data and refer to the plant catalogue numbers under which fuller information can be had.

When the identifications are made, the Forester will furnish the District Forester with the data, including economic notes not recognized by the collector, and a carbon will be inclosed for the information of the supervisor. The identifications should then be recorded in the plant catalogue and on the lower right-hand corner of the cardboard mounts.

Supervisors will have little trouble in mounting the specimens. In some instances, however, it may be convenient for the District office to mount the specimens for the supervisors, though this is not essential.

Plant herbarium catalogues, drying blotters, paper folders or retaining sheets, and the special form (No. 767) here shown are now subject to requisition by Forest officers. It is desirable to use uniform retaining sheets for convenience in handling the specimens.

At the end of the season the full record should be entered, either upon sheets which may be placed with each specimen or recorded in a third notebook.

The collection and preparation of the specimens serves many useful purposes: In the first place it tends to familiarize those on the forests with the plant life that is found there, and it creates a direct interest in the forms of vegetation and their uses. But mainly it affords valuable data from which may be derived, in the case of range and forage plants, many lessons for the permanent improvement of the range and for the increase in its carrying capacity.

Approved:

JAMES WILSON,
Secretary of Agriculture.

WASHINGTON, D. C., *April 26, 1911.*

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